ENVIRONMENTAL PRODUCT DECLARATION

In accordance with EN 15804 and ISO 14025

Tonga®

Programme: The International EPD® System, www.environdec.com
Programme operator: EPD International AB
Version: 1.0
Registration number: S-P-05196

Date of publication (issue): 04/01/2022
Date of revision: 13/01/2022
Date of validity: 26/11/2026
In accordance with ISO 14025, ISO 21930 and EN 15804

The environmental impacts of this product have been assessed over its whole life cycle. Its Environmental Product Declaration has been verified by an independent third party.

Summary Environmental product declaration

Content summary	
Verified by (external third-party verifier)	Martin Erlandsson, IVL Swedish Environmental Research Institute
Programme used	The International EPD System. For more information see www.environdec.com
Registration No	S-P-05196
Owners declaration by	Saint-Gobain Eurocoustic Tour Saint-Gobain, 12 place de l'Iris 92400 Courbevoie France
Declaration as construction products	The products to be verified herein are acoustic stone wool panels made for sound absorbing ceilings. The present environmental product declaration complies with standard ISO 14025 and describes the environmental impact. Its purpose is to promote compatible and sustainable environmental development of related construction methods. Reference PCR document: EN 15804 as the core PCR + International EPD System Product Category Rules – PCR for constructions products and construction services, Acoustical systems solutions (sub-oriented PCR; appendix to PCR 2012:01) - previously Acoustic ceilings. EPD of construction products may not be comparable if they do not comply with EN 15804.
Validity	26/11/2026
Content of the declaration	This is an environmental product declaration containing environmental information of the product in the family Tonga®. The values presented in this EPD are represented for the following products: Tonga® A 22, Tonga® A 40, Tonga® Therm A 80 Supplemental product information can be found at www.eurocoustic.com
Issued date	26/11/2021

Product responsible:

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Independent third party verifier:

Martin Erlandsson
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IVL

Product description

Product description and description of use:

This Environmental Product Declaration (EPD) describes the environmental impact of 1 m^2 of acoustic ceiling with the intended use to increase sound absorption in a room to create a better indoor environment.

This Environmental Product Declaration (EPD) are valid for products produced in the Eurocoustic production plants in France with a high-quality stone wool in different densities and thicknesses. The mineral wool is covered with a painted or woven surface layer and cut into panels of different sizes and edge designs. The edges are painted and the panels are packed in cardboard boxes.

The structure of stone wool gives the material excellent sound energy absorption properties. Sound absorption is the main function of acoustic stone wool panels. The panels are also stable, and easy to handle and cut.

Acoustic stone wool panels are commonly used in schools, offices, health care facilities and production premises where there is a need for noise reduction to improve the working environment. The decrease in reverberation time, sound pressure level and other acoustic parameters are related to the amount of panels used in the room as well as the placement of the panels. The acoustic panels need no maintenance and do not age. They can last as long as the building itself. For aesthetic reasons, normal room surface cleaning is advised.

Description of the main product components and materials for 1 m^2 of product:

Parameter	Value (Weight in %)	Pre-consumer recycled content
Product thickness	22-80 mm	-
Stone wool	87%-95%	27%
Waterborne paint	0%	-
Glass tissue	5%-12%	-
Waterborne glue	0%	-
Plastic wrapping	60-100 g	-

Total weights			
Product	Tonga® A 22	Tonga® A 40	Tonga® Therm A 80
Total weight [kg]	2.2	3.1	5.7

All raw materials contributing more than 5% to any environmental impact are listed in the table above. The panels are free from substances of very high concern (SVHC). The product contains no substances from the REACH Candidate list (of 13.07.2021).

If there in future occur production changes that generate an increased impact larger than 10% the EPD will be updated and re-verified.

Other environmental indicators

Regarding the indoor environment, the Tonga® products are certified for or fulfil regulations according to the following table:

Certificate and Regulations
French VOC A+
Eurofins Indoor Air Comfort GOLD (for Tonga® A 22 and Tonga® A 40)

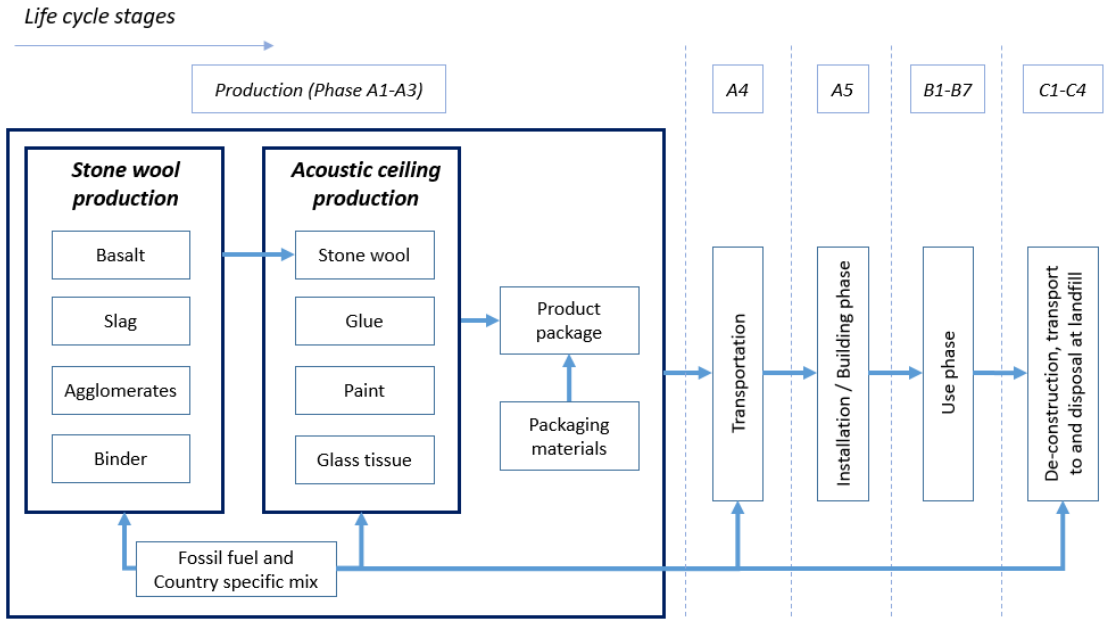
LCA calculation information

Declared unit	1m² of acoustic celling panel.
Functional unit	1m² acoustic ceiling with sound absorption class A installed at an ODS of 200mm according to ISO 354.
System boundaries	Cradle to grave: Mandatory stages = A1-3, A4-5, B1-7, C1-4 and optional stage = D This EPD covers the environmental impact of acoustic panels without grid or suspension system.
Reference Service Life (RSL)	50 years
Cut-off rules	The use of cut-off criterion on mass inputs and primary energy at the unit process level (1%) and at the information module level (5%). Flows related to human activities such as employee transport are excluded. Biogenic carbon has not been included in calculations. The construction of plants, production of machines and transportation systems are excluded since the related flows are supposed to be negligible compared to the production of the building product when compared at these systems lifetime level.
Allocations	Allocation criteria are based on mass.
Geographical coverage and time period	For A1-A3: Global For A4 : European covering (2019)

According to EN 15804, EPD of construction products might not be comparable if they do not comply with this standard. According to ISO 21930, EPD's might not be comparable if they are from different EPD administrating schemes.

Life Cycle stages

Flow diagram of the Life Cycle



Product stage, A1-A3

Description of the stage:
The product stage of the stone wool products is divided into 3 modules: A1 "Raw material and supply", A2 "Transport to the manufacturer" and A3 "Manufacturer". The aggregation of the modules A1, A2 and A3 is a possibility considered by the EN 15 804 standard. This rule is applied in this EPD.

A1 Raw material supply
This module takes into account the extraction and processing of all raw materials and energy which occur upstream to the studied manufacturing process.

Specifically, the stone wool raw material supply covers production of binder components and sourcing (quarry) of raw materials for fiber production, e.g. basalt. Besides these raw materials, recycled materials (briquette and slag) are also used as input. Electricity is taken as country specific mix. Production of packaging materials is also covered.

A2 Transport to the manufacturer
The raw materials are transported to the manufacturing site. In our case, the modelling includes: road, boat or train transportations (average values) of each raw material.

A3 Manufacturing
The manufacturing includes two steps; stone wool production and stone wool panel production. The mineral wool panels are produced in a continuous online process starting with applying glass tissue on the stone wool baseboard. The panels are cut into correct size and the edges of the panels are painted. After drying the panels are packed in cardboard boxes.

Manufacturing covers all processes linked to production, which comprises various related operations besides on-site activities such as grinding, painting and drying, packaging and internal transportation. The manufacturing process also yields data on the combustion of refinery products, such as natural gas, diesel and gasoline, related to the production process.

The environmental profile of these energy carriers is modelled for local conditions. Packaging-related flows in the production process and all up-stream packaging are included in the manufacturing module, i.e. wooden pallets, cardboard and PE-film. Apart from production of packaging material, the supply and transport of packaging material are also considered in the LCA model. They are reported and allocated to the module where the packaging is applied. Data on packaging waste created during this step is then generated. It is assumed that packaging waste generated in the course of production and up-stream processes is100% collected and either recycled or incinerated with energy recovery, related to material and quality, in ratios according to the local material handling companies.

A representative electricity mix for stone wool production in the country of origin was used. The finished product is produced in France.

Construction process stage, A4-A5

Description of the stage:
The construction process is divided into 2 modules: A4 "Transport to the building site" and A5 "Installation in the building.

Description of scenarios and additional technical information:
A4 Transport to the building site
This module includes transport from the production gate to the building site. Transport is calculated on the basis of a scenario with the parameters described in the following table.

Parameter	Value
Fuel type, consumption of fuel and vehicle or vehicle type used for transport	Average truck trailer with a 24t payload, diesel consumption 31.7 litres for 100 km
Distance	645 km (based on transports in 2019)
Capacity utilisation (including empty returns)	90% of the capacity in volume 100% of empty returns
Bulk density of transported products (if available)	70 - 85 kg/m^3
Volume capacity utilisation factor (if available)	0.45

The transport distance has been calculated from a European average transport for Eurocoustic in 2019 from the parameters in the table above.

A5:1 Installation in the building

This module includes waste of products during the implementation, i.e. the additional production processes to compensate the loss and the waste processing which occur in this stage.

Scenarios used for quantity of product wastage and waste processing are:

Parameter	Value
Waste of materials on the building site before waste processing, generated by the product's installation	5%
Output materials (specified by type) as results of waste processing at the building site e.g. of collection for recycling, for energy recovering, disposal	Packaging waste is 100 % collected and modelled as material for recycling Ceiling panel losses are landfilled

A5:2 Energy usage

As a general figure the time to install 1 m^2 ceiling is considered to be 20 minutes. During this time the installer is considered to use handheld appliances for about 5% of this time which in this case results in 1 minute. A handheld device such as a cordless screwdriver is considered to have a power of 0.7 kilowatt. Therefore, in one minute it will consume a total energy of 0.7*60 = 4.2 kilojoule = 0.0042 MJ, per m^2 ceiling. In this context it is a negligible contribution and will not be part of the LCA calculation (lower than 0.1% of the total energy consumption).

Use stage (excluding potential savings), B1-B7

Description of the stage:
The use stage is divided into 7 modules, B1 "Use", B2 "Maintenance", B3 "Repair", B4 "Replacement", B5 "Refurbishment", B6 "Operational energy use", B7 "Operational water use"

Description of scenarios and additional technical information:
Once installation is complete, no actions or technical operations are required during the use stages until the end of life stage. Therefore, acoustic ceiling panels have no impact (excluding potential energy savings) on this stage.

End-of-life stage C1-C4

Description of the stage:
The end-of life stage is divided into 4 modules; C1 "De-construction, demolition", C2 "Transport to waste processing", C3 "Waste processing for reuse, recovery and/or recycling", C4 "Disposal".

Description of scenarios and additional technical information:

C1, De-construction, demolition
The dismantling of acoustic ceiling panels takes part during renovation or demolition of the building. In this case, the environmental impact is assumed to be very small and can be neglected.

C2, Transport to waste processing
The model for transportation (see A4, Transportation to the building site) is applied.

C3, Waste processing for reuse, recovery and/or recycling;
The product is considered to be landfilled without reuse, recovery or recycling.

C4, Disposal;
The product is assumed to be 100% landfilled.

Parameter	Value/description
Collection process specified by type	2200 - 5700 g of acoustic ceiling (collected with mixed construction waste)
Recovery system specified by type	No reuse, recycling or energy recovery
Disposal specified by type	2200 - 5700 g of acoustic ceiling will go to landfill
Assumptions for scenario development (e.g. transportation)	Average truck trailer with a 24t payload, diesel consumption 31.7 litres for 100 km 50 km (distance to landfill)

Reuse/recovery/recycling potential, D

Not declared.

LCA results

LCA model, aggregation of data and environmental impact are calculated through the GaBi Professional software. Secondary data is mainly taken from Ecoinvent 3.6 with some GaBi datasets.

Raw materials and energy consumption, as well as transport distances have been taken directly from the manufacturing plants of Saint-Gobain Eurocoustic in 2019.

Modules declared, geographical scope, share of specific data, and variation between sites (last two percentages given in GWP indicator) are stated in the following table. For stages A1-A3 (largest contribution to total GWP), the raw materials are modelled with very low amount of generic data – over 78% of the GWP comes from specific data.

	Product phase			**Construction process phase**		**Use phase**							**End of life phase**					**Resource recovery phase**
	Raw material and supply	Transport to the manufacturer	Manufacturing	Transport to the building site	Installation in the building	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport to waste processing	Waste processing	Disposal		Reuse-Recovery-Recycling-potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4		D
Modules declared	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		MND
Geography	SE, NL, FR, DK, PL, DE, FI, GB, EU, GLO	SE, NL, FR, DK, PL, DE, FI, GB, EU, GLO	FR	GB, EU, GLO	EU, GLO								GB, EU, GLO	GB, EU, GLO	GB, EU, GLO	GB, EU, GLO		-
Specific data	> 78 %			-														-
Variation sites	One site			-														-

Summary of the LCA results are detailed in the tables below.

All results in the EPD are written in logarithmic base of ten. Reading example:
5.2E-03 = $5.2 * 10^{-3}$ = 0,0052.

MND (module not declared), is equal to MNA (module not assessed).

Environmental impact.

Environmental impacts				
Parameters		Tonga A 22	Tonga A 40	Tonga Therm A 80
Global Warming Potential (GWP) - kg CO_2 equiv/FU	A1-A3	3.50E+00	4.56E+00	7.79E+00
	A4	1.20E-01	1.73E-01	3.12E-01
	A5	2.43E-01	3.38E-01	5.88E-01
	B1-B7	0.00E+00	0.00E+00	0.00E+00
	C1	0.00E+00	0.00E+00	0.00E+00
	C2	8.50E-03	1.24E-02	2.27E-02
	C3	0.00E+00	0.00E+00	0.00E+00
	C4	1.69E-01	1.83E-01	2.21E-01
	D	MND	MND	MND
	Total A-C	4.04E+00	5.27E+00	8.94E+00
		The global warming potential of a gas refers to the total contribution to global warming resulting from the emission of one unit of that gas relative to one unit of the reference gas, carbon dioxide, which is assigned a value of 1.		
Ozone Depletion (ODP) kg CFC 11 equiv/FU	A1-A3	1.45E-07	1.86E-07	2.92E-07
	A4	2.73E-17	3.95E-17	7.09E-17
	A5	7.26E-09	9.29E-09	1.46E-08
	B1-B7	0.00E+00	0.00E+00	0.00E+00
	C1	0.00E+00	0.00E+00	0.00E+00
	C2	1.93E-18	2.83E-18	5.16E-18
	C3	0.00E+00	0.00E+00	0.00E+00
	C4	1.46E-16	2.23E-16	4.22E-16
	D	MND	MND	MND
	Total A-C	1.52E-07	1.95E-07	3.06E-07
		Destruction of the stratospheric ozone layer which shields the earth from ultraviolet radiation harmful to life. This destruction of ozone is caused by the breakdown of certain chlorine and/or bromine containing compounds (chlorofluorocarbons or halogens), which break down when they reach the stratosphere and then catalytically destroy ozone molecules.		
Acidification potential (AP) kg SO_2 equiv/FU	A1-A3	1.64E-02	2.19E-02	3.64E-02
	A4	1.62E-04	2.35E-04	4.22E-04
	A5	8.45E-04	1.13E-03	1.90E-03
	B1-B7	0.00E+00	0.00E+00	0.00E+00
	C1	0.00E+00	0.00E+00	0.00E+00
	C2	1.15E-05	1.68E-05	3.07E-05
	C3	0.00E+00	0.00E+00	0.00E+00
	C4	1.98E-04	2.82E-04	4.99E-04
	D	MND	MND	MND
	Total A-C	1.76E-02	2.36E-02	3.93E-02
		Acid depositions have negative impacts on natural ecosystems and the man-made environment incl, buildings. The main sources for emissions of acidifying substances are agriculture and fossil fuel combustion used for electricity production, heating and transport.		
Eutrophication potential (EP) kg $(PO_4)^{3-}$ equiv/FU	A1-A3	4.30E-03	5.11E-03	7.18E-03
	A4	3.43E-05	4.96E-05	8.91E-05
	A5	3.10E-04	3.93E-04	6.07E-04
	B1-B7	0.00E+00	0.00E+00	0.00E+00
	C1	0.00E+00	0.00E+00	0.00E+00
	C2	2.43E-06	3.56E-06	6.49E-06
	C3	0.00E+00	0.00E+00	0.00E+00
	C4	2.10E-04	2.19E-04	2.44E-04
	D	MND	MND	MND
	Total A-C	4.85E-03	5.77E-03	8.13E-03
		Excessive enrichment of waters and continental surfaces with nutrients, and the associated adverse biological effects.		
Photochemical ozone creation (POPC) kg Ethene equiv/FU	A1-A3	2.93E-03	4.17E-03	7.46E-03
	A4	-4.85E-05	-7.01E-05	-1.26E-04
	A5	1.66E-04	2.36E-04	4.24E-04
	B1-B7	0.00E+00	0.00E+00	0.00E+00
	C1	0.00E+00	0.00E+00	0.00E+00
	C2	-3.44E-06	-5.03E-06	-9.18E-06
	C3	0.00E+00	0.00E+00	0.00E+00
	C4	5.83E-05	6.47E-05	8.14E-05
	D	MND	MND	MND
	Total A-C	3.10E-03	4.39E-03	7.83E-03
		Chemical reactions brought about by the light energy of the sun. The reaction of nitrogen oxides with hydrocarbons in the presence of sunlight to form ozone is an example of a photochemical reaction.		
Abiotic depletion potential for non-fossil resources (ADP-elements) - kg Sb equiv/FU	A1-A3	4.75E-06	5.74E-06	8.09E-06
	A4	4.41E-09	6.38E-09	1.15E-08
	A5	2.37E-07	2.87E-07	4.04E-07
	B1-B7	0.00E+00	0.00E+00	0.00E+00
	C1	0.00E+00	0.00E+00	0.00E+00
	C2	3.13E-10	4.58E-10	8.35E-10
	C3	0.00E+00	0.00E+00	0.00E+00
	C4	2.75E-09	4.16E-09	7.82E-09
	D	MND	MND	MND
	Total A-C	5.00E-06	6.04E-06	8.52E-06
Abiotic depletion potential for fossil resources (ADP-fossil fuels) - MJ/FU	A1-A3	2.53E+01	3.23E+01	4.99E+01
	A4	1.65E+00	2.38E+00	4.29E+00
	A5	1.41E+00	1.82E+00	2.88E+00
	B1-B7	0.00E+00	0.00E+00	0.00E+00
	C1	0.00E+00	0.00E+00	0.00E+00
	C2	1.17E-01	1.71E-01	3.12E-01
	C3	0.00E+00	0.00E+00	0.00E+00
	C4	4.82E-01	6.73E-01	1.17E+00
	D	MND	MND	MND
	Total A-C	2.89E+01	3.73E+01	5.86E+01
		Consumption of non-renewable resources, thereby lowering their availability for future generations.		

Resource use

Environmental impacts				
Parameters		Tonga A 22	Tonga A 40	Tonga Therm A 80
Use of renewable primary energy excluding renewable primary energy resources used as raw materials - MJ / FU	A1 - A3	5.93E+00	7.06E+00	9.99E+00
	A4	4.01E-02	5.81E-02	1.04E-01
	A5	2.75E-01	3.22E-01	4.43E-01
	B1 - B7	0.00E+00	0.00E+00	0.00E+00
	C1	0.00E+00	0.00E+00	0.00E+00
	C2	2.85E-03	4.17E-03	7.60E-03
	C3	0.00E+00	0.00E+00	0.00E+00
	C4	5.05E-02	7.70E-02	1.46E-01
	D	MND	MND	MND
	Total A-C	6.30E+00	7.52E+00	1.07E+01
Use of renewable primary energy used as raw materials - MJ / FU	A1 - A3	2.37E+00	2.99E+00	4.56E+00
	A4	0.00E+00	0.00E+00	0.00E+00
	A5	-2.37E+00	-2.99E+00	-4.56E+00
	B1 - B7	0.00E+00	0.00E+00	0.00E+00
	C1	0.00E+00	0.00E+00	0.00E+00
	C2	0.00E+00	0.00E+00	0.00E+00
	C3	0.00E+00	0.00E+00	0.00E+00
	C4	0.00E+00	0.00E+00	0.00E+00
	D	MND	MND	MND
	Total A-C	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials) - MJ / FU	A1 - A3	8.30E+00	1.00E+01	1.45E+01
	A4	4.01E-02	5.81E-02	1.04E-01
	A5	-2.10E+00	-2.67E+00	-4.12E+00
	B1 - B7	0.00E+00	0.00E+00	0.00E+00
	C1	0.00E+00	0.00E+00	0.00E+00
	C2	2.85E-03	4.17E-03	7.60E-03
	C3	0.00E+00	0.00E+00	0.00E+00
	C4	5.05E-02	7.70E-02	1.46E-01
	D	MND	MND	MND
	Total A-C	6.30E+00	7.52E+00	1.07E+01
		Tonga A 22	Tonga A 40	Tonga Therm A 80
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials - MJ /FU	A1 - A3	3.75E+01	4.82E+01	7.63E+01
	A4	1.66E+00	2.41E+00	4.33E+00
	A5	2.00E+00	2.59E+00	4.13E+00
	B1 - B7	0.00E+00	0.00E+00	0.00E+00
	C1	0.00E+00	0.00E+00	0.00E+00
	C2	1.18E-01	1.73E-01	3.15E-01
	C3	0.00E+00	0.00E+00	0.00E+00
	C4	4.93E-01	6.90E-01	1.20E+00
	D	MND	MND	MND
	Total A-C	4.18E+01	5.41E+01	8.63E+01
Use of non-renewable primary energy used as raw materials - MJ / FU	A1 - A3	2.74E+00	3.59E+00	5.32E+00
	A4	0.00E+00	0.00E+00	0.00E+00
	A5	-2.13E+00	-2.71E+00	-3.73E+00
	B1 - B7	0.00E+00	0.00E+00	0.00E+00
	C1	0.00E+00	0.00E+00	0.00E+00
	C2	0.00E+00	0.00E+00	0.00E+00
	C3	0.00E+00	0.00E+00	0.00E+00
	C4	-6.12E-01	-8.83E-01	-1.59E+00
	D	MND	MND	MND
	Total A-C	0.00E+00	0.00E+00	0.00E+00
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) - MJ / FU	A1 - A3	4.03E+01	5.18E+01	8.16E+01
	A4	1.66E+00	2.41E+00	4.33E+00
	A5	-1.30E-01	-1.20E-01	4.00E-01
	B1 - B7	0.00E+00	0.00E+00	0.00E+00
	C1	0.00E+00	0.00E+00	0.00E+00
	C2	1.18E-01	1.73E-01	3.15E-01
	C3	0.00E+00	0.00E+00	0.00E+00
	C4	-1.19E-01	-1.93E-01	-3.90E-01
	D	MND	MND	MND
	Total A-C	4.18E+01	5.41E+01	8.63E+01
		Tonga A 22	Tonga A 40	Tonga Therm A 80
Use of secondary material Kg / FU	A1 - A3	7.10E-01	1.05E+00	1.95E+00
	A4	0.00E+00	0.00E+00	0.00E+00
	A5	3.55E-02	5.25E-02	9.77E-02
	B1 - B7	0.00E+00	0.00E+00	0.00E+00
	C1	0.00E+00	0.00E+00	0.00E+00
	C2	0.00E+00	0.00E+00	0.00E+00
	C3	0.00E+00	0.00E+00	0.00E+00
	C4	0.00E+00	0.00E+00	0.00E+00
	D	MND	MND	MND
	Total A-C	7.46E-01	1.10E+00	2.05E+00
		Tonga A 22	Tonga A 40	Tonga Therm A 80
Use of renewable secondary fuels MJ / FU	A1 - A3	0.00E+00	0.00E+00	0.00E+00
	A4	0.00E+00	0.00E+00	0.00E+00
	A5	0.00E+00	0.00E+00	0.00E+00
	B1 - B7	0.00E+00	0.00E+00	0.00E+00
	C1	0.00E+00	0.00E+00	0.00E+00
	C2	0.00E+00	0.00E+00	0.00E+00
	C3	0.00E+00	0.00E+00	0.00E+00
	C4	0.00E+00	0.00E+00	0.00E+00
	D	MND	MND	MND
	Total A-C	0.00E+00	0.00E+00	0.00E+00
		Tonga A 22	Tonga A 40	Tonga Therm A 80
Use of non-renewable secondary fuels - MJ / FU	A1 - A3	0.00E+00	0.00E+00	0.00E+00
	A4	0.00E+00	0.00E+00	0.00E+00
	A5	0.00E+00	0.00E+00	0.00E+00
	B1 - B7	0.00E+00	0.00E+00	0.00E+00
	C1	0.00E+00	0.00E+00	0.00E+00
	C2	0.00E+00	0.00E+00	0.00E+00
	C3	0.00E+00	0.00E+00	0.00E+00
	C4	0.00E+00	0.00E+00	0.00E+00
	D	MND	MND	MND
	Total A-C	0.00E+00	0.00E+00	0.00E+00
		Tonga A 22	Tonga A 40	Tonga Therm A 80
Use of net fresh water m³ / FU	A1 - A3	1.99E-02	2.57E-02	4.03E-02
	A4	1.02E-05	1.47E-05	2.64E-05
	A5	9.77E-04	1.26E-03	1.97E-03
	B1 - B7	0.00E+00	0.00E+00	0.00E+00
	C1	0.00E+00	0.00E+00	0.00E+00
	C2	7.21E-07	1.06E-06	1.93E-06
	C3	0.00E+00	0.00E+00	0.00E+00
	C4	7.26E-05	1.21E-04	2.47E-04
	D	MND	MND	MND
	Total A-C	2.09E-02	2.71E-02	4.25E-02

Waste categories

Environmental impacts				
Parameters		Tonga A 22	Tonga A 40	Tonga Therm A 80
Hazardous waste disposed kg / FU	A1 - A3	1.06E-09	1.45E-09	2.51E-09
	A4	1.77E-11	2.57E-11	4.61E-11
	A5	5.22E-11	7.17E-11	1.24E-10
	B1 - B7	0.00E+00	0.00E+00	0.00E+00
	C1	0.00E+00	0.00E+00	0.00E+00
	C2	1.26E-12	1.84E-12	3.36E-12
	C3	0.00E+00	0.00E+00	0.00E+00
	C4	3.64E-11	5.72E-11	1.11E-10
	D	MND	MND	MND
	Total A-C	1.16E-09	1.61E-09	2.79E-09
		Tonga A 22	Tonga A 40	Tonga Therm A 80
Non-hazardous waste disposed - kg / FU	A1 - A3	6.75E-01	9.03E-01	1.57E+00
	A4	4.47E-05	6.47E-05	1.16E-04
	A5	1.27E-01	1.80E-01	3.21E-01
	B1 - B7	0.00E+00	0.00E+00	0.00E+00
	C1	0.00E+00	0.00E+00	0.00E+00
	C2	3.17E-06	4.65E-06	8.47E-06
	C3	0.00E+00	0.00E+00	0.00E+00
	C4	2.06E+00	3.04E+00	5.59E+00
	D	MND	MND	MND
	Total A-C	2.86E+00	4.12E+00	7.48E+00
		Tonga A 22	Tonga A 40	Tonga Therm A 80
Radioactive waste disposed kg / FU	A1 - A3	3.72E-03	5.10E-03	8.77E-03
	A4	1.95E-06	2.82E-06	5.07E-06
	A5	1.77E-04	2.42E-04	4.16E-04
	B1 - B7	0.00E+00	0.00E+00	0.00E+00
	C1	0.00E+00	0.00E+00	0.00E+00
	C2	1.38E-07	2.03E-07	3.69E-07
	C3	0.00E+00	0.00E+00	0.00E+00
	C4	-1.42E-05	-1.21E-05	-6.78E-06
	D	MND	MND	MND

Output flow

Environmental impacts				
Parameters		Tonga A 22	Tonga A 40	Tonga Therm A 80
Components for re-use kg/FU	A1 - A3	-	-	-
	A4	-	-	-
	A5	-	-	-
	B1 - B7	-	-	-
	C1	-	-	-
	C2	-	-	-
	C3	-	-	-
	C4	-	-	-
	D	MND	MND	MND
	Total A-C	-	-	-
		Tonga A 22	Tonga A 40	Tonga Therm A 80
Materials for recycling kg/FU	A1 - A3	0.00E+00	0.00E+00	0.00E+00
	A4	0.00E+00	0.00E+00	0.00E+00
	A5	0.00E+00	0.00E+00	0.00E+00
	B1 - B7	0.00E+00	0.00E+00	0.00E+00
	C1	0.00E+00	0.00E+00	0.00E+00
	C2	0.00E+00	0.00E+00	0.00E+00
	C3	0.00E+00	0.00E+00	0.00E+00
	C4	0.00E+00	0.00E+00	0.00E+00
	D	MND	MND	MND
	Total A-C	-	-	-
		Tonga A 22	Tonga A 40	Tonga Therm A 80
Materials for energy reovery - kg/FU	A1 - A3	-	-	-
	A4	-	-	-
	A5	-	-	-
	B1 - B7	-	-	-
	C1	-	-	-
	C2	-	-	-
	C3	-	-	-
	C4	-	-	-
	D	MND	MND	MND
	Total A-C	-	-	-
		Tonga A 22	Tonga A 40	Tonga Therm A 80
Exported energy MJ/FU	A1 - A3	0.00E+00	0.00E+00	0.00E+00
	A4	0.00E+00	0.00E+00	0.00E+00
	A5	0.00E+00	0.00E+00	0.00E+00
	B1 - B7	0.00E+00	0.00E+00	0.00E+00
	C1	0.00E+00	0.00E+00	0.00E+00
	C2	0.00E+00	0.00E+00	0.00E+00
	C3	0.00E+00	0.00E+00	0.00E+00
	C4	0.00E+00	0.00E+00	0.00E+00
	D	MND	MND	MND
	Total A-C	-	-	-

Summary

Aggregation of results from A1 to C4 in selected impact categories.

	Tonga A 22	Tonga A 40	Tonga Therm A 80
Global warming  kg CO_2equiv/FU	**4.04**	**5.27**	**8.94**
Non-renewable resources consumption *[1]*  MJ/FU	**29**	**37**	**59**
Energy consumption *[2]*  MJ/FU	**48**	**62**	**97**
Water consumption *[3]*  m^3/FU	**0.02**	**0.03**	**0.04**
Waste production *[4]*  kg/FU	**2.87**	**4.13**	**7.49**

[1] This indicator corresponds to the abiotic depletion potential of fossil resources.

[2] This indicator corresponds to the total use of primary energy.

[3] This indicator corresponds to the use of net fresh water.

[4] This indicator corresponds to the sum of hazardous, non-hazardous and radioactive waste disposed.

Difference from previous versions

The product has earned Eurofins Indoor Air Comfort Gold certification thanks to its very low VOC emission. This has been added to the chapter "Other environmental indicators" in the EPD. The Ecoplatform logo has also been updated as well as the validity date.

Reference list

ISO 354:2003: Acoustics – Measurement of sound absorption in a reverberation room

Eurofins Indoor Air Comfort: Eurofins Indoor Air Comfort GOLD and Indoor Air Comfort Version 7.0 May 2020

LCA report: Project_report_on_Eurocoustic_LCA_2021-12-06

EN 15804:2012+A1:2013: Sustainability of construction works - Environmental product declarations

Acoustical systems solutions (sub-oriented PCR; appendix to PCR 2012:01) - previously Acoustic ceilings.

PCR 2012:01 Construction products and construction services (version 2.33 dated 2020-09-18)

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